

Patent Claims:

1. An exhaust gas turbocharger (1) having a housing and having a shaft (2) which is arranged so as to be capable of rotating about its longitudinal axis in the housing and on which a turbine wheel (4) and a compressor wheel (3) are seated and which is guided in radial bearings (5, 6) and in at least one axial bearing (9), the radial bearings (5, 6) being embodied as passive permanent-magnetic bearings which each have a bearing plate (12, 16) which is seated, as a rotor, on the shaft (2), and at least one stator (19, 20, 21, 22) which is disposed axially opposite to said rotor, characterized in that a resilient element (60, 61) is arranged between each stator (19, 20, 21, 22) and a part (37, 38) which is fixed to the housing in order to radially damp oscillation movements of the shaft (2).
2. The exhaust gas turbocharger as claimed in claim 1, characterized in that the parts which are fixed to the housing are formed by housing plates (37, 38) with a flange projection which projects axially beyond the stator (19, 20, 21, 22).
3. The exhaust gas turbocharger as claimed in claim 1 or 2, characterized in that the resilient element (60, 61) is connected without a gap to a radially outwardly lying surface of the stator (19, 20, 21, 22) at one end, and to a radially inwardly lying surface of the part which is fixed to the housing at the other.
4. The exhaust gas turbocharger as claimed in one of claims 1 to 3, characterized in that the resilient element (60, 61) is embodied as a cylindrical ring which is arranged coaxially with respect to the shaft (2).

5. The exhaust gas turbocharger as claimed in one of claims 1 to 4, characterized in that the resilient element (60, 61) has a spring stiffness between 200 kN/m and 600 kN/m.

6. The exhaust gas turbocharger as claimed in one of claims 1 to 5, characterized in that the resilient element (60, 61) has a damping constant between 100 kg/s and 300 kg/s.

7. The exhaust gas turbocharger as claimed in one of claims 1 to 6, characterized in that the resilient element (60, 61) is composed of a plastic material, preferably of rubber material.

8. The exhaust gas turbocharger as claimed in one of claims 1 to 7, characterized in that the stator (19, 20, 21, 22) is embodied as a yoke (17, 18) which is U-shaped in cross section and surrounds the rotor axially and radially.

9. The exhaust gas turbocharger as claimed in one of claims 1 to 8, characterized in that there are two radial bearings (5, 6) between which there is disposed at least one axial bearing (9).